SUGARBUSH RESIDENTIAL DEVELOPMENT PROJECT

APPENDIX B

CONCEPTUAL FIRE PROTECTION PLAN (FPP)

GPA 05-010/TM 5295RPL7/R04-008/SP 03-003/
S04-015/LOG NO. 02-08-047
SCH No. 2005121098

for the

DRAFT ENVIRONMENTAL IMPACT REPORT

OCTOBER 2009

Conceptual

Fire Protection Plan
for
Sugarbush; Tract 5295 RPL-7

Vista, California

April 2004
Revised September 2006
Revised April 2009, June 2009

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Appendix:

1.INTRODUCTION/ SCOPE

This is the Fire Protection/ Fuel Modification plan for the Sugarbush development in Vista California. This development is located at the west end of Sugarbush Drive. This development is located within the Vista Fire Protection District. This plan demonstrates compliance of the development with the Fire District letters dated August 11, 2008 April 21, 2009, and June 16,2009, and the DPLU/County Fire Authority Fire Marshal letter of 6-3-09, cc'd to the Vista Fire Marshal. The Vista Fire Protection District has approved this plan per their 6-16-09 letter. It also demonstrates compliance with Section 4703, of the County Fire Code, which requires a Fire Protection Plan for any new development in the Wildland Urban Interface. This plan also complies with the requirements of the County of San Diego DPLU for Fire Protection Plans and Vegetation Management Plans.

2.PROJECT DESCRIPTION

The development includes 45 single family detached dwellings on lots ranging from 21,750 sq ft, to 73,616 sq ft. For comparison, a ½ acre lot is 21,780 sq ft. The homes will be located on a looped, public road, which takes access from Sugarbush Drive. The property, which will be built upon, is relatively flat. There are slopes on the north, east and south sides. An existing development is on the west side of lots 1-8.

The development will have a gated emergency access/secondary access roadway extending from Cleveland Trail. There will also be an additional gated emergency access point consisting of the paved portion of Lone Oak road that is on this property. Access via Lone Oak Road is limited to emergency vehicles. The gate on Cleveland Trail will provide emergency egress by any vehicle from the Sugarbush development, or emergency access by firefighters responding via Cleveland Trail.

The closest Fire Station is Vista Station 2, which is at 1050 Valley Drive. It is 1.9 miles from the site. The driving time to the end of Sugarbush is 4 minutes at 45 MPH. The driving time complies with nationally accepted response criteria to sprinklered residences.

The APN is 181-162-05,15,16 and 184-080-08 and 181-170-33.

3.FIRE RISK ASSESSMENT

The consultant inspected the site on two occasions. The property is mainly Coastal Sage with some non-native grasslands. The consultant generated BEHAVE models for the site. Times and mileage from the closest fire station were evaluated.

The two on site inspections conducted by consultant results in the opinion that the area is a high Urban Wildland Interface fire hazard area which is susceptible to a fire burning on to the site from the north and the east. Fire spread down off site portions of Sugarbush

would be partly due to the large amount of Eucalyptus and Pine trees in the existing tract. Based upon the original fire risk assessment done by the consultant, the tract was redesigned and located in a less hazardous location off the slopes.

The worst-case fire would occur under "Santa Ana" wind conditions after several days of protracted hot weather and hot dry winds. Fires occurring elsewhere can spot into this development due to airborne burning debris, and ignite on site fires. Therefore, one purpose of this plan is to provide proper fuel modification on private lots so that such spotting does not ignite vegetation. Fire can also start in vegetation surrounding the site due to careless hikers, arsonists, juvenile fire setters or illegal use of off road vehicles. Therefore, fuel modification is also recommended in this plan, in order to slow down or stop fire spread from adjoining vegetation.

BEHAVE Fire Spread models:

BEHAVE Fire Spread models were generated for this site**.** The models used were Fuel Model 4 (chaparral) for the vegetation adjoining lots 8-11 and 33 through 45, and a Grass Model 3 for the lots on the west side (lots 1-7). The results of the models are as follows:

Fuel Model 4 (Chaparral)

Inputs:

Vegetation height; 6'
1 hour fuel moisture: 2%
10 hour fuel moisture: 3%
Live woody moisture: 60%
Slope: 33%
20' windspead upslope: 60 MPH
Air temperature: 90 degrees Fahrenheit.

These inputs represent a worst-case fire scenario:

Results of model:

Flame length: 90.9'
Rate of spread: 1661 feet per minute (20.7 MPH)
Spotting distance ahead of main fire: 4.5 miles

Fuel Model 3: (Grass)

Inputs:

3' high grass
1 hour fuel moisture: 2%
Slope steepness: 33%

20' wind speed upslope; 60 MPH
Air Temperature: 90 degrees Fahrenheit.
Results of model:

Flame length: 40.1'
Rate of spread: 966 ' per minute (12 mph)
Spotting distance: 2.5 miles

4.FUEL MODIFICATION ZONES

As a result of the fire spread models, and the Fire District requirements, Fuel Modification Zones ranging from 100 to 125' from structures are recommended for lots 8–11, and lots 33-45. A six-foot high solid masonry wall will be located on the north side of lots 1 and 6, between lots 1 and 6 and the retention basins. Also, 6' high solid masonry walls will be located behind the private lots on the slope so as to help deflect flame over the house. Where the roofline of the house is below the level of the top of the wall, a 100' fuel modification zone will be provided. Where this cannot be done, a 125' zone will be provided. Refer to the profile drawing and the Fuel Modification matrix in the Appendix.

On the west side of the tract (lots 1-8), where the lots abut existing development, there will be a 75' fuel modification zone from the property line fence to the house. This property is relatively flat and backs up to existing off site houses. Vegetation management on the off site lots is out of the scope of this plan. Enforcement of fuel modification requirements on those lots would be done by the Fire District on an annual basis, per existing regulations.

On lots 12-32 (interior lots), the entire lot shall be considered as Zone 1 per this plan and comply with the design and maintenance requirements for Zone 1.

FUEL MODIFICATION ZONES:

Zone 1; Defensible Space; 30' on all sides of structures:

This 30' space is an irrigated wet zone. Grasses to be low profile, less than 3". There should be no vegetation within 10' of any chimney. No tree canopies within 10' of structures. Trees to be 50' between mature canopies. Examples of a tree allowed beyond 10' is a single well spaced and maintained specimen of Coastal Live Oak, sycamore, maple, elm, cottonwood, willow or jacaranda. The first 30' from the structure should consist of well irrigated, well spaced, Fire Department approved, low fuel volume, high fuel moisture, drought tolerant, low profile fire resistive groundcover or lawn. Fire resistive shrubs, to a height of 18", may be used beyond 15' from structure. Spacing between mature shrubs, and between mature plants, should be 10.' Shrubs shall be located 20' away from tree drip lines.

Any single specimen of approved trees or shrubs must be properly located, spaced, limbed and pruned to a height of 6' from the adjacent ground.

No dry grasses, acacia, eucalyptus, palm, juniper, cypress, conifer, pepper, olive, camphor, bottlebrush, pampas grass, chaparral, sage, sagebrush, salvia spp, chamise, California buckwheat or manzanita. See additional prohibited vegetation in the "Undesirable Plants" section of this plan. The objective is to prevent spread of fire to or from a structure. It is extremely critical to keep flammable vegetation and ornamental vegetation away from the structure so as to prevent a path for fire to reach the structure. No chipped biomass or wood bark within 30' of structures. No mulch within 12" of foundation. No plastic trashcans in this zone, and no LPG tanks. No Palapas or jungle gyms allowed in this zone.

Zone 2: 31' out to edge of private lot on all sides of structures (lots are at least 100' in depth). Zones 1 and 2 result in encompassing the entire private lot in an irrigated wet zone. Total width of zones on perimeter lots 8 (on south side of lot), 9,10,34,35, and 39-45 to be 100' from structure based upon the matrix in the appendix. This distance is based upon the top of the 6' solid masonry wall on the property line, on the slope behind each house, being at the same level or higher than the roof line. On lots 11,33,36-38, the roof is higher than the top of the wall. Therefore, the distance will be 125' and the homes will be one story. The entire property on Lots 12-32 (interior lots) will each be considered an irrigated Zone 1, per this plan, and will be designed and maintained as such. Refer to profile and Fuel Modification matrix in appendix.

This Zone is an irrigated wet zone of low volume, fire resistive, low profile fuel (native grasses less than 3", Vinca Minor). It may also include certain properly mowed, thinned, limbed, pruned and spaced natural existing vegetation with the exception of that vegetation which is prohibited in this plan. No dry grass is allowed.

Trees must be properly limbed up (6' from adjacent ground), dead fuels removed, flammable under story removed, and must be well spaced. Specimens of approved and properly maintained trees such as coastal live oak, sycamore, maple, elm, cottonwood, willow, jacaranda or other high leaf moisture/ low oil content trees may be used. Trees to be 50' between mature canopies. No acacia, eucalyptus, palm, juniper, pepper, olive, camphor, bottlebrush, cypress, conifer, or pampas grass. No dry grass, chaparral, sage, chamise, salvia spp, sagebrush, California buckwheat, or manzanita. All exotics should be removed. See additional list of prohibited vegetation in the "Undesirable Plants" section of this plan Approved fire resistive shrubs and plants may be used if properly spaced (10' between mature shrubs and 10' between mature plants), kept below 24", and kept free of all dead fuel. Provide 20' between shrubs and trees.

The objective is to reduce flammable vegetation, reduce the potential for fire to spread to trees from vegetation on the ground, reduce potential for fire to spread to and through vegetation and then to the structure, and to preclude invasion of highly flammable exotic vegetation. Any shrubs or trees must be properly spaced, limbed and pruned and have all dead material removed.

Areas within this zone are to be kept free of all exotics and flammable vegetation, including those identified in this plan. Vegetation also includes flammable trees, including the type identified in this plan. Grasses and weeds are to be kept mowed to 3" throughout the zone.

West side of lots l-7, and west side of lot 8

These lots are on the west side and back up to offsite homes. The total size of the fuel modification zones will be 75' from structure. This entire 75' will be considered Zone 1 per the above listed criteria for zone 1. The Fire District will enforce it's ongoing fuel modification/ weed abatement requirements on the existing off site properties, per existing regulations, as this developer has no authority to do so.

Lots E and F (Retention basin)

The Lot F retention basin adjoining lot 1 will have a 30' fuel modification zone around the perimeter where it adjoins lot 1, and the roads. A six-foot high solid masonry wall will be constructed between lot 1 and the retention basin. Flammable vegetation within the retention basin must be kept cut, mowed, pruned, etc., to remove the fire hazard.

The Lot E retention basin adjoining lot 6 will have a 30' Fuel Modification Zone around the perimeter where it adjoins lot 6, and the roads. A six-foot high solid masonry wall will be constructed between lot 6 and the retention basin. Flammable vegetation within the retention basin must be kept cut, mowed, pruned, etc., to remove the fire hazard.

Roadside Fuel Modification

There shall be Fuel Modification Zones on each side of roadsides, including the entire length of the main entrance road from connection to Sugarbush, to lot #1, and the emergency access/secondary access road; Cleveland Trail. On site portions of the emergency/secondary access road where 16' wide fuel modification zones cannot be provided on the sides, shall have an engineered, solid 8' high masonry/block wall on that side. Offsite portion is a currently approved access road to existing homes. Offsite portions of Cleveland Trail will have 20' fuel modification on each side as currently required by the County Fire Code, and to be enforced by the Vista Fire Protection District as part of their current Code Enforcement program. Fuel Modification Zones on each side of the main access road will be 30', as shown on the plan. Roadside fuel modification on interior roads will be 20'. There shall be no flammable vegetation or flammable trees in the roadside fuel modification zones. The fuel modification criteria for Zones 1 and 2 shall also apply to these roadside zones. The zones will be landscaped and irrigated. They will be maintained in compliance with this plan, by the Homeowners Association (HOA). No vegetation prohibited in this plan shall be planted in this area.

GENERAL VEGETATION MANAGEMENT REQUIREMENTS:

The objective is to enclose each structure within a vegetation management zone and remove as much flammable vegetation as possible, to remove any continuous fuel beds, and to limit the potential for burning fuels on the ground to burn into trees and shrubs. Any vegetation (including trees and shrubs) must be approved by the Fire District and be properly spaced, configured and maintained. An added objective is to limit ornamental shrubbery around structures and to create a defensible space around the structure to assist firefighters in protecting the structure.

All vegetation in all zones, including on private lots, common areas, streets, retention basins, and in open space within this development, must be maintained annually to remove undesirable combustible vegetation, ornamental vegetation, remove dead fuels, replace dead/ dying fire resistant plantings, eliminate ladder fuels, eliminate invasive vegetation and to control the volume of fuel to the satisfaction of the Fire District.

Caution must be used not to cause erosion or ground (including slope) instability or water runoff due to vegetation removal, management, or irrigation. No uprooting is necessary. Proper cutting to meet the objective can be done.The vegetation management requirements in this plan are made based upon the understanding that the entire project and all structures will be in strict, ongoing, compliance with all Fire District and Department of Planning and Land Use/County Fire Authority requirements. Permission will be required from resource agencies for vegetation management in any sensitive or critical habitat areas. The HOA, homeowners, or the developer may submit alternative methods of compliance with the requirements of this plan, to the Fire District for consideration.

The Vista Fire Protection District requires that the Fuel Modification Zone requirements, the requirements for the deflection walls on private lots, as referenced in the language for Zone 2, and as included in Appendix C and D of this plan, and the requirements for roadside fuel modification, including fuel modification and the wall on Cleveland Trail, shall be recorded on the deed for the applicable lots where these requirements apply. This must include the requirements for one story homes where required in this plan. In locations where one-story homes are required, such requirements for one-story homes shall not be changed later without the addition of additional, adequate, fuel modification to the approval of the Vista Fire Protection District and the DPLU/County Fire Authority Fire Marshal.

UNDESIRABLE PLANTS:

Certain plants are considered to be undesirable in the landscape due to characteristics that make them highly flammable. These characteristics can be physical or chemical. Physical properties that contribute to high flammability include large amounts of dead material retained within the plant, rough or peeling bark, and the production of large amounts of litter. Chemical properties include presence of oils, resins, wax, and pitch. Any such existing plants should be removed and new ones should not be introduced.

The following should not be planted or retained in any Fuel Modification Zones.

Botanical Name	Common Name	Comment*
Trees		
Abies species	Fir	F
Acacia species (numerous)	Acacia	F, I
Agonis juniperina	Juniper Myrtle	F
Araucaria species (A. heterophylla, A. araucana, A. bidwillii)	Araucaria (Norfolk Island Pine, Monkey Puzzle Tree, Bunya Bunya)	F
Callistemon species (C. citrinus, C. rosea, C. viminalis)	Bottlebrush (Lemon, Rose, Weeping)	F
Calocedrus decurrens	Incense Cedar	F
Casuarina cunninghamiana	River She-Oak	F
Cedrus species (C. atlantica, C. deodara)	Cedar (Atlas, Deodar)	F
Chamaecyparis species (numerous)	False Cypress	F
Cinnamomum camphora	Camphor	F
Cryptomeria japonica	Japanese Cryptomeria	F
Cupressocyparis leylandii	Leyland Cypress	F
Cupressus species (C. fobesii, C. glabra, C. sempervirens,)	Cypress (Tecate, Arizona, Italian, others)	F
Eucalyptus species (numerous)	Eucalyptus	F, I
Juniperus species (numerous)	Juniper	F
Larix species (L. decidua, L. occidentalis, L. kaempferi)	Larch (European, Japanese, Western)	F
Leptospermum species (L. laevigatum, L. petersonii)	Tea Tree (Australian, Tea)	F
Lithocarpus densiflorus	Tan Oak	F
Melaleuca species (M. linariifolia, M. nesophila, M. quinquenervia)	Melaleuca (Flaxleaf, Pink, Cajeput Tree)	F, I
Olea europea	Olive	I
Picea (numerous)	Spruce	F
Palm species (numerous)	Palm	F, I
Pinus species (P. brutia, P. canariensis, P. b. eldarica, P. halepensis, P. pinea, P.	Pine (Calabrian, Canary Island, Mondell, Aleppo, Italian Stone, Monterey)	F

Botanical Name	Common Name	Comment*
radiata, numerous others)		
Platycladus orientalis	Oriental arborvitae	F
Podocarpus species (P. gracilior, P. macrophyllus, P. latifolius)	Fern Pine (Fern, Yew, Podocarpus)	F
Pseudotsuga menziesii	Douglas Fir	F
Schinus species (S. molle, S. terebenthifolius)	Pepper (California and Brazilian)	F, I
Tamarix species (T. africana, T. aphylla, T. chinensis, T. parviflora)	Tamarix (Tamarisk, Athel Tree, Salt Cedar, Tamarisk)	F, I
Taxodium species (T. ascendens, T. distichum, T. mucronatum)	Cypress (Pond, Bald, Monarch, Montezuma)	F
Taxus species (T. baccata, T. brevifolia, T. cuspidata)	Yew (English, Western, Japanese)	F
Thuja species (T. occidentalis, T. plicata)	Arborvitae/Red Cedar	F
Tsuga species (T. heterophylla, T. mertensiana)	Hemlock (Western, Mountain)	F
Groundcovers, Shrubs & Vines		
Acacia species	Acacia	F, I
Adenostoma fasciculatum	Chamise	F
Adenostoma sparsifolium	Red Shanks	F
Agropyron repens	Quackgrass	F, I
Anthemis cotula	Mayweed	F, I
Arbutus menziesii	Madrone	F
Arctostaphylos species	Manzanita	F
Arundo donax	Giant Reed	F, I
Artemisia species (A. abrotanium, A. absinthium, A. californica, A. caucasica, A. dracunculus, A. tridentata, A. pynocephala)	Sagebrush (Southernwood, Wormwood, California, Silver, True tarragon, Big, Sandhill)	F
Atriplex species (numerous)	Saltbush	F, I
Avena fatua	Wild Oat	F
Baccharis pilularis	Coyote Bush	F
Bambusa species	Bamboo	F, I
Bougainvillea species	Bougainvillea	F, I
Brassica species (B. campestris, B. nigra, B. rapa)	Mustard (Field, Black, Yellow)	F, I
Bromus rubens	Foxtail, Red brome	F, I

Botanical Name	Common Name	Comment*
Castanopsis chrysophylla	Giant Chinquapin	F
Cardaria draba	Hoary Cress	I
Carpobrotus species	Ice Plant, Hottentot Fig	I
Cirsium vulgare	Wild Artichoke	F,I
Conyza bonariensis	Horseweed	F
Coprosma pumila	Prostrate Coprosma	F
Cortaderia selloana	Pampas Grass	F, I
Cytisus scoparius	Scotch Broom	F, I
Dodonaea viscosa	Hopseed Bush	F
Eriodictyon californicum	Yerba Santa	F
Eriogonum species (E. fasciculatum)	Buckwheat (California)	F
Fremontodendron species	Flannel Bush	F
Hedera species (H. canariensis, H. helix)	Ivy (Algerian, English)	I
Heterotheca grandiflora	Telegraph Plant	F
Hordeum leporinum	Wild barley	F, I
Juniperus species	Juniper	F
Lactuca serriola	Prickly Lettuce	I
Larix species (numerous)	Larch	F
Larrea tridentata	Creosote bush	F
Lolium multiflorum	Ryegrass	F, I
Lonicera japonica	Japanese Honeysuckle	F
Mahonia species	Mahonia	F
Mimulus aurantiacus	Sticky Monkeyflower	F
Miscanthus species	Eulalie Grass	F
Muhlenbergia species	Deer Grass	F
Nicotiana species (N. bigelovii, N. glauca)	Tobacco (Indian, Tree)	F, I
Pennisetum setaceum	Fountain Grass	F, I
Perovskia atroplicifolia	Russian Sage	F
Phoradendron species	Mistletoe	F
Pickeringia montana	Chaparral Pea	F
Rhus (R. diversiloba, R. laurina, R. lentii)	Sumac (Poison oak, Laurel, Pink Flowering)	F
Ricinus communis	Castor Bean	F, I
Rhus Lentii	Pink Flowering Sumac	F
Rosmarinus species	Rosemary	F
Salvia species (numerous)	Sage	F, I

Botanical Name	Common Name	Comment*
Salsola australis	Russian Thistle	F, I
Solanum Xantii	Purple Nightshade (toxic)	I
Silybum marianum	Milk Thistle	F, I
Thuja species	Arborvitae	F
Urtica urens	Burning Nettle	F
Vinca major	Periwnkle	I

*F = flammable, I = Invasive

NOTES:

1. Plants on this list that are considered invasive are a partial list of commonly found plants. There are many other plants considered invasive that should not be planted in a fuel modification zone and they can be found on The California Invasive Plant Council's Website www.cal-ipc.org/ip/inventory/index.php. Other plants not considered invasive at this time may be determined to be invasive after further study.
2. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
3. The absence of a particular plant, shrub, groundcover, or tree, from this list does not necessarily mean it is fire resistive.
4. All vegetation used in Vegetation Management Zones and elsewhere shall be subject to approval of the Fire Marshal.
5. Landscape architects may submit proposals for use of certain vegetation on a project specific basis. They shall also submit justifications as to the fire resistivity of the proposed vegetation.
6. This list was prepared by Hunt Research Corporation and Dudek and associates and reviewed by, Scott Franklin Consulting co.

DO NOT PLANT, OR RETAIN, ANY OF THE ABOVE LISTED VEGETATION IN ANY FUEL MODIFICATION ZONE AROUND HOMES, IN ANY ROADSIDE FUEL MODIFICATION ZONE, RETENTION BASIN, OR IN ANY MEDIAN, OR PLANTER. DO NOT USE ANY OF THE ABOVE LISTED TREES OR SHRUBS AS STREET TREES. OR SHRUBS.

PLANTING, SPACING AND MAINTENANCE GUIDELINES:

General information**:**

A. Make all measurements on the horizontal straight out from structures, rather than down the slope.
B. Maintenance includes irrigation and annual removal of weeds, dead materials, and other undesirable flammable vegetation required to keep the area fire safe.
C. As new plantings mature, they must be thinned to maintain the recommended spacing and heights.
D. The terms "fire resistant" or "fire retardant" are misleading. All vegetation and plants will burn if exposed to enough heat. Because something is considered fire retardant or fire resistant does not mean that unlimited quantities can be planted or that they will somehow slow down a fire.
E. Limit or eliminate use of plants, which are known to be flammable.
F. Limit use of plants, which develop large amounts of foliage, branches, or dead material.
G. Limit use of plants, which develop deciduous or shaggy bark.
H. Limit use of plants, which develop dry or dead undergrowth.

I. Recommended tree spacing is 50’ between mature canopies.
J. Shrubs and plants should be spaced 10’ between mature shrubs and 10’ between mature plants. Maintain heights per requirements for Zone 1 and 2.
K. Keep shrubs 20’ from drip line of trees.
L. Configure plantings so that they are spaced and maintained so as not to create a direct path from native growth to a structure.
M. Do not use bark or chipped biomass in Zone 1.
N. All plant species must be limited to those approved by the Fire District for this area.
O. Prohibit massing of vegetation adjacent to structures, especially under eaves, overhangs, windows, vents**,** decks, etc.
P. Vegetation Management requirements and the requirements for continuous maintenance must be documented in the private lot deed encumbrances, CCR’s and in other legal documents and disclosures at time of sale. It must be made absolutely clear to homeowners that they have a legal responsibility to maintain a fire safe defensible space on all sides of the structures in compliance with this plan and the Fire District requirements. The HOA shall enforce all vegetation management requirements, and structural protection requirements on all private lots, common areas and open space, and enforce vegetation management requirements in Zones 1-2.
Q. Yearly maintenance, before fire season (typically May 1, including during construction) and more often as needed, is required to reduce fuel volumes, eliminate weeds, remove dead vegetation, cut grass, limb up and prune, remove down and dead fuels, remove flammable under story, etc.
R. If irrigation is curtailed or prohibited, any vegetation, which requires irrigation must be removed, except for vegetation requiring minimal water, or vegetation needed to prevent erosion and soil instability, and no vegetation from the “Undesirable Plant” list in this plan shall be allowed.. In the event this occurs, then any groundcover and grass in fuel modification zones including for structures, roadsides and common areas, shall be removed and be replaced by gravel, rock or other non combustible materials. All trees and shrubs elsewhere shall be on drip irrigation if allowed. The last 50’ of fuel modification zones, furthest from structures, can include properly sized chipped biomass (Cal Trans #2; ½” diameter by 6”). Landscape Architects will need to design the landscaping on private lots and common areas so that non-irrigated vegetation does not create a fire hazard. Private lot owners, and the HOA, shall consult Landscape Architects when designing their landscaping, in order to design landscaping that will be less combustible and will be able to survive with curtailed irrigation.
S. Adequate precautions must be taken to prevent soil erosion or slope instability due to fuel modification, vegetation management, landscaping, irrigation, maintenance, etc.
T. .No Fuel modification may be done in any area of sensitive habitat or any area where prohibited by the County or the Resource Agencies.

ANNUAL ONGOING VEGETATION MANAGEMENT AND ONGOING MAINTENANCE OF GATES AND ROADS:

Vegetation management shall be done annually by May 1 of each year and more often as needed. The individual homeowners shall be responsible for all vegetation management on their private lots, in compliance with this plan and Fire District requirements. Private lot owners are responsible to do annual vegetation management on their lots in order to maintain vegetation in compliance with this plan. The HOA is responsible for, and shall have the authority for, assuring ongoing compliance with the vegetation planting, management, and maintenance requirements in this plan on all private lots, common areas, roadsides and open space. The HOA shall obtain an inspection and report from a Fire Department authorized Wildland Fire Safety Inspector, in May of each year, certifying that the vegetation management on private lots and in common areas/ open space, etc, has been done according to this plan. Such report is to be funded by the HOA and submitted for Fire Marshal approval. The requirements in this plan, and the requirements for ongoing maintenance, will be included in the recorded CC and R's and Deed encumbrances for each lot. Such recorded instruments shall refer to this plan.

The HOA shall be responsible for ongoing maintenance of the on site portions of the emergency access road and the gates on the emergency access road in the development, in order to maintain such road and gates in compliance with the requirements in this plan.

CERTIFIED EVACUATION PROGRAM:

The HOA shall support and participate in a local Certified Evacuation Program, or equivalent, as may be endorsed by the Vista Fire Protection District.

PRESCRIBED CONTROLLED BURNS

The HOA shall support, and participate in, any potential control burns in open space, for fire safety. Such prescribed burns would be designed and performed by the Fire Agency having jurisdiction over the property, and must be approved by all applicable county, state, and federal environmental agencies. The Fire agency would assume all legal responsibility for such activities.

CONSTRUCTION PHASE VEGETATION MANAGEMENT

Vegetation management in all common areas, roadsides, etc shall be done as required in this plan at the start of, and throughout the construction phase. Vegetation management shall be done on private lots prior to work beginning on those lots and prior to any combustible construction materials being brought on site. Adequate fuel breaks shall be created around all grading, site work and other construction activities in areas where there is flammable vegetation.

5.INFRASTRUCTURE, STRUCTURAL FIRE PROTECTION/ FIRE PROTECTION SYSTEMS.

Urban Wildland Interface fire protection is a systems approach, which includes the components of Vegetation management, adequate infrastructure and structural safeguards. This section provides recommendations for those components:

A. INFRASTRUCTURE RECOMMENDATIONS:

The following conceptual recommendations are made in order to comply, where applicable, with the Vista Fire Protection District requirements, County of San Diego DPLU requirements, San Diego County Fire Code, Chapter 47 of the California Fire Code, the International Urban Wildland Interface Code, and nationally accepted fire protection standards as well as assisting in providing reasonable on site fire protection. In some cases these recommendations exceed the Fire District and DPLU requirements, but are recommended based upon the on site risk. The consultant can only make recommendations. Any recommendations made in this plan shall become requirements of the Fire Agencies when this plan is approved, per letter from DPLU/County Fire Authority dated 6-3-09. Chapter 7-A of the California Building Code and Section 92.1.704 of the County Building Code will also be complied with (these are new requirements since past approval of this plan, which relate to construction requirements in the Wildland Urban Interface.These requirements are now included in this revised plan).

1. WATER SUPPLY:

A. Fire Hydrant Spacing:

Fire Hydrants shall be of a type to approval of the Fire District and shall have one 4" outlet and one 2.5" outlet. Acceptable hydrants are the Jones Model 3700 and/or Clow model 2050.

Fire Hydrants should also be located on the main entry road from Sugarbush (Street "A") 500' apart. Final location of all hydrants is subject to approval of the Fire Marshal.

There will be at least 7 fire hydrants. Fire Hydrant locations are to be located as follows. The Fire District requires 650' spacing. The consultant recommends 11 hydrants. Hydrant spacing to be 500' rather than the required 650' spacing. The proposed hydrant locations, at 500' spacing, are as follows (also shown on site plan in Appendix):

1. At entrance to tract at end of Sugarbush Drive, on right (driving) side of road "A" on development side of any gate.
2. 500' from the first hydrant on road "A", on right (driving) side of road

3. 500’ from the second hydrant on road “A”, on right (driving) side of road.
4. Northeast corner of lot 22 at road intersection streets “A” and “D”.
5. Property line of lots 25-26
6. Property line of lots 28-29
7. Southeast corner of lot 32 at the turn in road.
8. Lot line of lots 7-8
9. South lot line of lot 5 at Lone Oak Lane.
10. Property line of lots 2-3
11. On corner of the tract street and Cleveland Trail on development side of any gate.

Hydrants are to be Jones model 3700 and/or Clow model 2050, per the Fire District. shall have a street valve in the hydrant lateral, located 10 to 25’ from the hydrant. Hydrants shall have a 3’ X 3’ concrete pad at the base of the hydrant for weed control.

Fire Hydrants are to be installed, operable and approved by Fire District prior to bringing combustibles onto job site.

B. Needed Fire Flow, Duration and storage:

The required fire flow shall be 1500 GPM fire flow at 20 PSI or greater at hydrants in the system (individual, single hydrant flow) with a 2 hour duration (180,000 gallons). Water main capacity required to be 2500 GPM. All structures over 200 square feet to have NFPA 13-D internal Fire Sprinklers. A 4 head calculation is recommended by the consultant. Structures larger than 13,400 sq feet will have increased fire flows per Fire Code Appendix B, Table B-105.1, and may utilize a 50% credit for sprinklers. The minimum fire flow with a sprinkler credit is to be 1500 GPM.

Each fire hydrant shall be able to flow at least 1500 GPM at least 20 PSI during a single hydrant flow test. Approximately sixty PSI static pressure or more may be required to supply all internal sprinkler systems in the structures.The water system shall be designed to assume that five sprinkler systems are flowing 52 GPM each at the same time the 1500 GPM system fire flow is occurring. The 2-hour duration should be provided at the same time as the peak domestic demand. The District Fire Marshal has determined that the project will be adequately protected by conforming to the 1500 GPM hydrant flow requirement. Refer to the Fire District’s letter of 8-11-08, in the Appendix of this plan.

The water supply is an extension from the public water main system on Sugarbush Drive.

The water system will be a looped system from Sugarbush Drive to Lone Oak Lane and Cleveland Trail, providing fire flow from two directions, with at least 8" diameter mains, or larger if deemed necessary by the water system engineers to provide the needed fire and peak domestic flow at acceptable pressures and velocities. Adequate isolation valving shall be provided in the mains, per AWWA M-31 recommendations for a fire protection water system. The system shall be designed so that no more than 3 fire hydrants (1500') can be shut off at any one time, due to a shutdown of a main. The system shall be designed to provide the needed flows with one source of supply shut off. The system must be properly engineered for seismic resistance.

The water system shall be designed to Fire District standards. Any private water systems for fire protection shall comply with NFPA 24; "Private Fire Service Mains", AWWA M-31 standards for fire protection systems, and Fire District water system standards.

Homeowners who install swimming pools should be encouraged to provide fire truck access to the pool water. This may be satisfied by installation of an approved draft hydrant at an accessible location, or a 2.5" gated "Jones" type hydrant valve connected to the swimming pool drain system at an accessible location.

2.ACCESS:

A. Road widths and circulation:

Roads are public roads. They shall be paved. Unobstructed road widths shall be 24' per the Vista Fire Protection District Fire Code and the San Diego Consolidated Fire Code with no parking allowed within the 24'. Each travel lane shall be at least 12' wide. This will allow a fire engine to pass by another fire engine, or a fire engine to pass by another vehicle. Proposed road width of main access road, from connection to Sugarbush Drive to lot 5, is 40' paved. The onsite road from lot 6 to lot 45 is 32' wide paved with parking on one side only. The portion of the street, which is 32' wide paved, shall be posted "No Parking-Fire Lane" on the side where parking is not allowed. For parking on both sides of a street, the required width shall be 40'.

All interior roadways are Fire Lanes. Fire Lanes shall not be obstructed by parked vehicles.

Vertical clearance over roads to be 13'6" with no canopy.

Any roadway or driveway in excess of 150' in length shall have approved provisions for turning around fire apparatus. Turning radius to be at least 36'.

Roadways and/or driveways shall provide fire department access to within 150’ of all portions of the exterior walls of the first floor of the structure

Turning radius at corners to be to Fire District approval.

Roadside design features (speed bumps, humps, speed control dips, planters, fountains, etc.) which could interfere with emergency apparatus response speeds and required unobstructed access road widths, shall not be installed or allowed to remain on roadways.

There shall be no vegetation or trees within any calming devices, planters, medians, slopes or other vegetated areas on roadsides, which could grow over the roadway and impede emergency apparatus access. Vertical clearance is required to be 13’ 6”. The type of vegetation shall be fire resistive and comply with this plan.

All roads to be paved to Fire Department standards and shall support a 75,000 pound fire apparatus. First lift of paving to be installed prior to combustible materials, other than foundation forming material, being brought to the site. Complete paving is required prior to final occupancy approval.

B. Road Grades:

Road grades shall not exceed 20% per the Fire District. Grades over 14% shall be paved with 3.5” of concrete with a deep broom finish perpendicular to the direction of travel.

C. Access Gates:

Access roads are to be public roads. They shall not be gated per the Fire Code.

Gates on the emergency access road and on private driveways shall be as follows and shall be to approval of the VFPD:

- Non combustible
- Sliding type, or swing in direction of travel.
- Have provision for manual operation if power fails
- Located 30’ in from any intersecting road.
- Be provided with KNOX key switch and with sensors for detecting emergency vehicle strobe lights from any direction of approach. Strobe detection and key switches shall be provided on the interior and exterior of gates.

- Gate on Secondary Access Road (Cleveland Trail) shall be openable automatically by any vehicle approaching it from the Sugarbush development, for emergency egress, and for Firefighters responding via Cleveland Trail.
- Gate to have automatic activation device on both sides of gate, operable by Sugarbush residents for egress in an emergency, or by Firefighters. The actual gate opening device, and signage, shall be approved by Vista Fire Protection District.
- Gate activation devices to be equipped with a battery back up or manual mechanical disconnect in case of power failure.
- Gate area to be lighted
- Width of gated area to be 2' wider than the road, which is gated.

D.Driveways:

Any home, which is 150' or more from a common road in the development, shall have a paved driveway. Driveways shall have grades less than 20% per Fire District. Driveways over 150' deep shall have an approved fire apparatus turnaround. Turnaround radius to be no less than 36'. Driveways serving two houses shall be 16' wide unobstructed and have a fire apparatus turnaround. Driveways serving more than two houses shall be 24' unobstructed. Lighted house addresses shall be posted at the entrance to each driveway if house numbers are not visible from street. When possible, while placing fire hydrants, such hydrants should be at entrances to driveways. Gates shall comply with Section C above.

E. Identification of Roads and Structures:

All structures shall be identified by internally lighted (low voltage) street address numbers at the structure. Numbers shall be 4" in height, three dimensional, and located 6 to 8' above grade. Numbers shall contrast with background and be visible and legible from the street. All addresses of any multiple structures located off driveways shall be posted on structures, on the entrance to individual driveways, and at the entrance to the common driveway. If the structure is 100' from the roadway, numbers shall also be located at entrance to driveway.

All streets shall have street names posted on non-combustible street sign posts. Letters/ numbers to be 4" high, reflective, on a 6" high backing. Signage to be 7' above grade. Street name signs to comply with County standards. There shall be street signs at each intersection, the entrance to the development, and elsewhere as needed. Signs are required to be installed prior to final inspection. Temporary signs, meeting requirements

of the Fire Department, are required prior to framing and are to remain in place until permanent signs are installed.

F. Response Maps:

The development is required to provide map updates in a format compatible with current Fire Department mapping services and shall be charged a reasonable fee for updating all response maps. Map updates are required prior to any combustible construction

G. Emergency Access:

Cleveland Trail is approved as a Secondary Access/Emergency Access road. Per the Fire District letter of 8-11-08, gated emergency access/secondary access will be provided from Cleveland Trail to street A over Lot F. This road will be 24' wide and paved and have 13'6" vertical clearance. It shall be improved as necessary along it's entire length to provide the 24' paved width requirement for the emergency access roadway. The crossing at Buena Creek is approximately 50' long and is approximately 20' wide at it's narrowest point. This has been approved by the Fire District. Refer to letter, dated 4-21-09, in the Appendix of this plan. An approved method of vehicle turnaround shall be provided on Cleveland Trail or on site. The turn around shall be located to the west of, and adjacent to the gate separating the existing off site Cleveland Trail and the on site emergency fire access/Secondary access roadway. Ingress and egress over the on site portion of this roadway shall be gated with operating mechanisms to approval of the Vista Fire Protection District and shall be operable automatically by any person in any vehicle on the Sugarbush development side, in an emergency, or by firefighters responding via Cleveland Trail.

The development has no control over the offsite, existing, portion of Cleveland Trail. Sixteen foot (16') wide Fuel modification zones will be provided on each side of the road, where within this development. The sides of the road, where on site, will have an engineered 8' high solid masonry block wall in locations where the 16' cannot be provided. The offsite portion is currently required to have 20' of fuel modification on each side, per the County Fire Code. The portions of the road outside and inside the development should be posted "No Parking-Fire Lane". The gates should have signs on both sides: "No Parking-Emergency Access Gate".

Secondary access shall be provided prior to any vertical construction.

The proposed roadway extension of lot D to Lone Oak Lane that occurs on site between Lots 5 and 6 shall remain a requirement for this project, but

will remain unconnected. That section of roadway shall be paved and gated with access limited to emergency vehicles.

H. Power lines:

All new power lines shall be underground. Any existing power lines shall have vegetation management as required by the County of San Diego Consolidated Fire Code.

I.Firefighter foot access:

Firefighter foot access will be available along the east side of the fire wall behind lots 8-11 and lots 33-45, via a 4' wide dirt path or by use of the required concrete swale.

B. IGNITION RESISTANT STRUCTURAL RECOMMENDATIONS:

This section of the plan recommends the concepts for ignition resistant construction, which meet or exceed the requirements of the Fire District and the County of San Diego Fire Code. These recommendations were updated 4-09 to reflect the new construction requirements found in the California Building Code Chapter 7-A and the County Building Code Section 92.1.704 It must be understood that while these standards will provide a high level of protection to structures in this development, and should reduce or eliminate the need to order evacuations, there is no guarantee of assurance that compliance with these standards will prevent damage or destruction of structures by fire in all cases.

A. Exterior walls: Exterior walls of all residences and garages to be approved ignition resistant materials per CBC Chapter 7-A from top of foundation to the roof and terminate per Chapter 7-A Section 704A.3.1.1. Wood shingle and shake wall covering is prohibited.
There should be no eaves. Soffits shall meet the requirements of Chapter 7-A, Section 704A.2.3.
If eaves are allowed, any eaves shall be properly boxed in and be protected by ignition resistant materials. They shall also meet the requirements of Chapter 7-A, Section 704A.2.3.
All under floor areas shall be enclosed and meet the requirements for ignition resistant construction.
There shall be no use of paper-faced insulation, or combustible installation, in the attic or other ventilated spaces.
There shall be no use of plastic, vinyl or light woods on the exterior.

B. Roofs: All roofs shall be a Class "A" fire rated roof assembly installed according to it's listing and the manufacturer's installation instructions. No wood roofs are allowed. Roofs shall be made tight with no gaps on

ends or in valleys, etc. Any openings on ends of roof tiles shall be enclosed to prevent intrusion of burning debris. Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be fire stopped with approved materials, or have one layer of 72 pound mineral surfaced, non perforated cap sheet complying with ASTM D 3909 installed over the combustible decking.

C. Roof Valleys; When provided, valley flashings shall be not less than 0.19 inch (no. 26 galvanized sheet gage) corrosion resistant metal installed over a minimum 36" wide underlayment consisting of one layer of 72 pound non perforated mineral cap sheet complying with ASTM D 3909 running the full length of the valley.

D. Any installations of solar type (photovoltaic, etc) panels shall be fire resistive, and shall have visible warning signs on them regarding the electrical hazard.

E. Ventilation: Vents shall prevent the intrusion of flame and embers into the attic area of the structure. No attic ventilation openings or ventilation louvers shall be permitted in eaves, cornices, soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas in the Urban Wildland Interface Area. Attic or foundation ventilation openings or ventilation openings in vertical walls (including the garage) shall be covered with louvers and corrosion-resistant metal screen or other approved material that offers equivalent protection. Vents shall not exceed 144 square inch each. Attic ventilation shall also comply with the requirements of the Building Code. Vents shall not be placed on roofs unless they are approved for Class "A" roof assemblies, and contain an approved baffle system to stop intrusion of burning material, or are otherwise approved. No roof turbine vents shall be allowed.

   Vents shall not face wildland areas or flammable vegetation. The Building Department should investigate the use of 1/8" or 3/16" mesh for attic vents, backed up by a baffle system, such as manufactured by Brandgaurd Vents. (www.Brandguardvents.com, 949-781-5300)or approved equivalent, to catch burning debris. It was discovered, in the recent fires in San Diego County, that burning embers and debris were entering through the code compliant ¼" mesh vents and igniting fires in the attics.

F. Glazing: Glazing, including glass, or other transparent, translucent or Opaque glazing, leaded glass, etc, shall be dual pane, insulating glass, units <u>with a minimum of one tempered pane</u>, or glass block units, or have a fire resistance rating of not less than 20 minutes when tested per County Building Code Section 704A.3.2.2. Plastic or vinyl window frames shall be of an approved type, which will not melt, ignite, or fail. Frames shall

have "welded" corners and metal reinforcement in the interlock area to maintain integrity and shall be certified to ANSI/AAMA/NWWDA 101/I.S.2-97 structural requirements. The size and amount of glazing facing wildland and open space areas should be minimized. Screens should be steel rather than plastic.

G. Skylights shall be tempered glass.

H. There shall be no plastic rain gutters or downspouts. Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter (which can then ignite the structure and/or edges of roofs.)

I. Exterior doors shall be approved non-combustible or solid core wood having stiles and rails not less than 13/8" thick, with interior field panel thickness not less than 1/14" thick, or have a 20-minute fire rating per County Building Code Section 704A.3.2.3. Garage doors shall be metal and have tight seals around gaps to prevent ember intrusion into garage.

J. Projections: Decking shall comply with Section 92.1.704A.4 of the County Building Code and with Chapter 7-A CBC. Exterior balconies, carports, decks, patio covers, gazebos, palapas, unenclosed roofs and floors, and similar architectural appendages and projections shall be of approved non-combustible construction, or one-hour fire resistive construction. There shall be no plastic or vinyl decking or railings. The ends of decks shall be enclosed with the same type of material. When such appendages and projections are attached to exterior fire-resistive walls, they shall be constructed to maintain the fire resistive integrity of the exterior wall, and shall have the same fire rating. There shall be no decks or overhangs over slopes. Decking surfaces, stair treads, risers and landing of decks, porches and balconies shall comply with County Building Code section 704A.4.1.3. and be constructed of non-combustible materials, exterior fire retardant treated wood, one-hour fire resistant material, heavy timber construction methods or comply with the testing requirements of County Building Code section 704A.4.1.4.

K. Underfloor and appendage protection:

The underside of cantilevered and overhanging appendages and floor projections shall maintain the ignition integrity of exterior walls, or the projection shall be enclosed to grade. There shall be no unenclosed underfloor areas.

L. Awnings/ canopies: there shall be no combustible awnings or canopies.

M. Fencing: Any fencing on the perimeter of private lots, facing wildland/ open space areas and parks shall be 6' solid masonry walls. No wood

fences allowed anywhere in tract (a wood gate is allowed with a 4X4 post). There will be a 6' high solid block fire wall along the rear property lines of perimeter lots from 8-11 and 33-45, and along the north property line of lot 1 adjoining the retention basin.

N. Spark Arrestors: All chimneys and other vents on heating appliances using solid or liquid fuel shall have spark arrestors of a type approved by the Fire District and shall comply with the County of San Diego Consolidated Fire Code. The code requires that openings be maximum ½". Arrestors shall be visible from the ground.

O. Dryer and Air conditioning vents shall not face wildland areas and open space.

P. The structures shall be set back a minimum of 40' from the centerline of the street, 30' from the adjoining structure, and 25' to 125' at the rear.

Q. Location of any LPG tanks (such as for structures, barbeques, patio lights, heaters etc), Firewood, hay storage, storage sheds, barns, outbuildings, etc:

The use of any LPG tanks, and any firewood, hay storage, storage sheds, barns, and other combustibles should be located at least 30' from structures, and 30' from flammable vegetation. Or shall be enclosed in an ignition resistant enclosure. In no case shall the tank be closer than 10' from the structure.

R. Ancillary structures:

Storage sheds, barns, RV garages, and outbuildings shall be of approved non-combustible or ignition resistant construction with non-combustible Class A roof assemblies, so as to not ignite and spread fire to the main structures. Additionally, any of the above listed structures, i.e., out buildings, storage sheds, barns, etc., that are 200 sq ft or more in size, shall be equipped with automatic fire sprinklers.

C. FIRE PROTECTION SYSTEMS:

All structures over 200 sq. ft. shall have automatic fire sprinkler systems designed and installed to the NFPA 13-D sprinkler standard, and VFPD standards/policies in order to provide life and property protection. The consultant recommends a four head calc. Sixty (60) or more PSI (static) may be required for the system. Sprinkler coverage shall also be provided for any attached or unattached garages and any enclosed porches or overhangs.

6. SUMMARY:

This Plan encompasses the latest Fire Code requirements and the recommendations found in the Nationally Accepted Standards of Good Practice. This plan complies with the applicable requirements of the Vista Fire Protection District Fire Code and requirements per their letters of 8-11-08 and 4-14-09, the County of San Diego Fire Code, The County Building Code including Section 92.1.704, California Building Code Chapter 7-A, and includes all components of a Fire Protection Plan as required by Section 4703 of the County Fire Code.

The Fire Protection upgrades proposed in this plan provide the "same practical effect" as allowed in Title 14 Section 1270.03 and described in Section 1271. Those items include the following. These items exceed the Fire Code and DPLU requirements.

1. 500' hydrant spacing rather than the required 650' spacing. Eleven fire hydrants instead of the seven required hydrants.
2. 4 head sprinkler calculation design.
3. Ignition resistant exterior walls (now required by Building Code).
4. Internally lighted building addresses.
5. Firefighter foot access around certain structures.
6. Vents shall not face wildland on north and east.
7. 6'solid masonry block walls on private lots; no wood fencing except for a gate with 4X4 post.
8. All decks to be 1 hour rated or approved non-combustible and comply with Chapter 7-A. and County Building Code Section 92.1.704.
9. Additional emergency access points for Firefighters available via Lone Oak Lane and Cleveland Trail.
10. Emergency/ Secondary Access provided via Cleveland Trail. Secondary Egress is provided for any vehicle from the Sugarbush development, and access is provided for firefighters responding via Cleveland Trail.

The type of protection proposed reduces the vegetation fire threat from the current condition and should greatly assist the Fire Department in controlling or extinguishing a vegetation fire at this development. The threat of an internal structure fire is mitigated by the installation of fire sprinklers and smoke detectors.

Of course, as fire is a dynamic and somewhat unpredictable occurrence, there can be no guarantees that a fire will not occur or will not result in injury, loss of life or loss of property. No guarantees are made, expressed or implied, as to the adequacy or effectiveness of recommendations and requirements in this plan, for all situations.

All "recommendations" made in this plan shall become "requirements" when this plan is approved by the Fire Agencies.

Engineering, Architectural services, design, water system and sprinkler system design, and any installations, are out of the scope of this plan. The developer, contractors, engineers and architects are responsible for proper implementation of the concepts and

requirements set forth in this plan. Homeowners are responsible to maintain their structures and lots as required by this plan, the Fire District, and as required by the Fire Code. Alternative methods of compliance with this plan can be submitted to the Fire District Fire Marshal for consideration.

It will be extremely important for all homeowners and occupants to comply with this plan on their property. The Homeowners Association will be responsible for ongoing enforcement of the Vegetation Management requirements found in this plan. Such requirements should be made a part of deed encumbrances and CC and R's for each lot. Fuel modification may not be done on property owned by others, or offsite, without obtaining written permission.